



PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**For: Cannelured Frangible Cartridge And Method Of Canneluring A Frangible Projectile**

## **PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Honorable Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicant requests review of the final rejection in the above-identified application.

No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reasons stated on the attached sheets (no more than 5 pages are provided).

I am the attorney or agent of record.

Respectfully submitted,  
**BACON & THOMAS, PLLC**

Date: May 1, 2006

By: BENJAMIN E. URCIA  
Registration No. 33,805

BACON & THOMAS, PLLC  
625 Slaters Lane, 4th Floor  
Alexandria, Virginia 22314  
Telephone: (703) 683-0500



Serial Number 10/774,390

Attachment to Pre-Appeal Brief  
Request for Review  
Examiner B. Hayes  
Group Art Unit 3641

## REASONS FOR REQUESTING REVIEW OF THE FINAL REJECTION

### (Attachment to Pre-Appeal Brief Request for Review)

Review of the final rejection of claims 1-3 and 11 is requested for the following reasons:

1. Rejection of Claims 1 and 2 Under 35 USC §102(b) in view of U.S. Patent No. 4,939,996 (Dinkha)

As argued in the last response, the Dinkha patent does not disclose or suggest canneluring of a frangible bullet made of a lead-free compressed powdered metal. Instead, the Dinkha patent discloses canneluring of a **ceramic** bullet, and specifically defines “ceramic,” as explained in col. 6, lines 6-10, in a way that excludes the claimed powdered metal material:

*...By ceramic is meant any inorganic, nonmetallic material capable of being densified, e.g. zirconia, especially toughened or partially-stabilized zirconia, zirconia-alumina composites, and whisker-reinforced ceramics.*

Thus, Dinkha actually *teaches away* from the claimed invention because it states that nonmetallic (meaning non-ceramic) materials should be used. The reviewer will note that Dinkha’s specifically gives “alumina,” which contains aluminum, as an example of a “non-metallic” material because it is a ceramic, so it is clear that Dinkha did not consider ceramics, including those with metallic constituents, to be metals. In contrast, the claimed invention specifically requires “compressed powdered metal,” which is not a ceramic.

Furthermore, not only does Dinkha define “ceramic” in such a way as to preclude powdered metal, but Dinkha actually specifically distinguishes compressed powdered metal materials from the ceramic described therein. For example, in lines 51-55 of col. 1, the Dinkha patent states that:

*...Attempts at producing a frangible or practice projectile have included projectiles composed of or including compacted metal powder (U.S. Patent No. 3,63,047, issued Aug. 26, 1969 to Germerschausen). . .*

The Dinkha patent then goes on, in col. 1, lines 67 *et seq.*, to specifically distinguish such prior “attempts” at producing frangible or practice projectiles on the grounds that:

*None of these materials have been found satisfactory for economically producing a projectile having the ballistic characteristic necessary for realistic practice.*

Thus, the Dinkha patent does not anticipate, and would not have suggested, any sort of compressed powdered metal bullet, much less one with a cannelure as claimed.

In reply, the Examiner argues that:

*The disclosure and alleged teaching away of Dinkha notwithstanding, the fact of the matter is that Dinkha does indeed disclose compressed powdered metal material when stating that zirconium, aluminum, and magnesium, et al. Can be used because these elements appear in the period [sic.] table under the “Metals” heading for just that reason—they are metals. Further, the term ‘ceramic’ normally includes oxides, which include aluminum and zirconium as key ingredients. Therefore, the recitation of a compressed powdered ‘metal’ material cannot overcome the Dinkha reference as argued because those ingredients are metals, whether or not that is Dinkha’s intention.*

The Examiner’s position appears to be that even though Dinkha teaches that compressed powdered metal, as opposed to ceramics, should not be used in the type of projectile described therein, the claimed invention is nevertheless obvious because Dinkha’s ceramics include metals as molecular constituents (for example, “alumina” contains aluminum, and therefore may be considered to be “compressed powdered metals,” as claimed. This position is wrong for a number of reasons:

1. The claims specifically recite a cannelured powdered metal projectile. The prior art, including the Dinkha patent, teaches numerous powdered metal projectiles and numerous cannelured solid metal or ceramic projectiles, and yet fails to teach a single cannelured powdered metal projectile. Merely calling a ceramic a compressed powdered metal, as

the Examiner has done, does not make canneluring of a compressed powdered metal obvious.

2. The Dinkha patent teaches a cannelured *ceramic* projectile and positively states that *compressed powdered metal* projectiles are unsuitable for the purposes with which the cannelured ceramic projectile are taught. The Examiner responds by explicitly ignoring the teachings of the reference, *i.e.*, by stating that his conclusions are “notwithstanding” the teachings of the reference.
3. Those skilled in the art know that a compressed powdered metal is not the same as a ceramic. The former is not fired in order to harden it, but rather is purposely left unhardened so that the projectile will complete disintegrate upon striking a target. Manufacturing and handling of a powdered metal projectile is clearly different from manufacturing and handling of a ceramic projectile, which is why Dinkha teaches away from powdered metal.
4. The mere fact that a ceramic contains a metal as a molecular constitute does not make a ceramic a compressed powdered metal, as alleged by the Examiner. A person’s blood has iron in it, and yet blood is not considered a metal, much less a powdered metal. Similarly, a ceramic metal oxide is not the same as a compressed powdered metal, and a teaching of canneluring is not logically a teaching of canneluring a compressed powdered metal projectile (even “notwithstanding” the teaching that compressed powdered metal should not be used in connection with the projectile of Dinkha).

It is respectfully submitted that a rejection should not be based on “word games,” *i.e.*, calling a ceramic a compressed powdered metal simply because both have metallic constituents, and ignoring the actual teachings of the reference, including the teaching that ceramics with metal constituents such as alumina are “non-metallic” and the teaching that only non-metallic materials should be used. Instead, the reference should be considered “as a whole.”

It is a principal objective of the present invention is to provide cannelured compressed powder bullets. It is well-known to cannelure conventional metal bullets because the cannelures can easily be machined or milled. However, as explained in lines 12-15 on page 2 of the original specification:

*Conventional machining or milling techniques tend to fracture or weaken the projectile, which is typically made of a compressed powder rather than solid material.*

It is respectfully submitted that the same is true of ceramic bullets, *i.e.*, that a “ceramic” bullet of the type taught by Dinkha corresponds to the conventional metal bullets mentioned in the description of the prior art on page 2 rather than to the compressed powdered metal bullet of the claimed invention. While both the ceramic bullet and the compressed powdered metal bullet are described as “frangible,” the ceramic bullet is more easily machined or milled than a compressed powdered metal bullet. Rather than addressing the problems of canneluring a compressed powdered metal bullet, Dinkha suggests using a particular ceramic that does not have the characteristics of the prior powdered metal bullet (which was not cannelured).

Because Dinkha specifically defines the ceramic disclosed therein in a way that excludes the claimed compressed powdered metal, the Dinkha patent clearly does not anticipate or suggest the claimed invention, and therefore claims 1 and 2 are patentable over the references of record both under 35 USC §102(b) and 35 USC §103(a).

2. Rejection of Claim 11 Under 35 USC §103(a) in view of U.S. Patent No. 4,939,996 (Dinkha)

This rejection should be reversed for the same reasons as the rejection of claims 1 and 2, *i.e.*, because the Dinkha patent **teaches away** from a compressed powdered metal bullet, specifically distinguishing an non-cannelured prior art compressed powdered metal bullet (col. 1, lines 51-55, quoted above), the Dinkha patent could not have suggested the claimed invention to the person of ordinary skill in the art.

In order to obtain the claimed invention, it would have been necessary to apply the bullet design shown therein to a compressed powdered metal bullet. However, the Dinkha patent provides no teachings that would have caused the ordinary artisan to do so. Instead, Dinkha discusses the unsuitability of compressed powdered metal for economical production. This is hardly a suggestion or teaching that previously non-cannelured compressed powdered metal bullets should be cannelured. Dinkha suggests a cannelure in a ceramic bullet, but not in a compressed powdered metal bullet that is much more difficult to cannelure.

3. Rejection of Claim 3 Under 35 USC §103(a) in view of U.S. Patent No. 4,939,996 (Dinkha) and 6,536,352 (Nadkarni)

This rejection is respectfully traversed on the grounds that the Nadkarni patent, like the Dinkha patent, does not disclose or suggest canneluring of a cannelured frangible bullet made of a lead-free compressed powdered metal, as claimed. Furthermore, while Nadkarni teaches adding copper and tin to a compacted powdered metal bullet, it does not teach adding copper and tin to a *ceramic* bullet of the type taught by Dinkha, and certainly does not include any teachings that would have caused the ordinary artisan to ignore the teachings of Dinkha concerning the inadequacy of compacted powdered metal.